

AI Development in Russia — Part 2 (<https://mindmatters.ai/podcast/ep104>)

Robert J. Marks:

What is the Russian military doing with AI? That's the topic today on Mind Matters News.

Announcer:

Welcome to Mind Matters News, where artificial and natural intelligence meet head on. Here's your host, Robert J. Marks.

Robert J. Marks:

Greetings. AI is being pursued all over the world. China has a \$30 billion program in AI. Vladimir Putin has said, "Whoever becomes a leader in AI will become a ruler of the world." So how is AI being drafted in today's Russian military specifically? That's what we're going to talk about today on Mind Matters News. We have the perfect guest to talk about this. Our guest is Samuel Bendett, he's an advisor with the CNA's Adversary Analysis Group, where he is a member of the Russia Studies Program. He is also a member of CNA's Center for Autonomy and Artificial Intelligence. So if you want to talk about Russia, you talk to Samuel Bendett, if you want to talk about artificial intelligence, you talk to Samuel Bendett. So we have the perfect person to talk about this. Sam, welcome, and thank you for participating in the broadcast.

Samuel Bendett:

Thanks for having me on your show.

Robert J. Marks:

One of the things about artificial intelligence is that, you hear it used all the time without a lot of definition. I think the media talks about artificial intelligence as being any gee whiz application that involves computers. Does Russia have a specific definition of artificial intelligence? And specifically, how does the Russian military define artificial intelligence?

Samuel Bendett:

Well, a Russian definition of artificial intelligence for the military, similar to the kind of the global debate in very general terms, Russian military defines AI as the ability to make decisions in conditions of uncertainty, the way a human is supposed to. And so Russian military has been developing its AI development ecosystem for a number of years as well. The civilian effort and launching different institutions, different organizations, different efforts to foster high-tech development, including AI machine learning, goes on the civilian side, it also happens on the military side as well. The Russian military wants to use artificial intelligence at this point in time as a decision making tool. A lot of discussions, a lot of announcements about Russian military's use of AI in weapons basically comes down to this particular AI in a particular weapon, collecting all of the available data on potential targets, presenting solutions to address these targets so that a human can make a final decision. For Russian military, AI today is a human in the loop approach, but again, it is a decision-making tool and that is what has been discussed publicly by various military organizations and institutions in Russia.

Robert J. Marks:

Okay, excellent. I suspect we would probably talk about cyber things in terms of a subset of being artificial intelligence. In the media in the United States, we hear all this news about Russia doing deepfake postings of generating fake emails and postings that are generated automatically by AI. What's your opinion about this? Is there a modicum of truth in this that you know about?

Samuel Bendett:

Well, in the spring of 2018 Russian Ministry of Defense, the MOD hosted a conference with the Russian Academy of Sciences and several other government institutions in order to kind of understand what is the level of AI development in the country, and what is the level of AI development internationally. And so this conference brought together a lot of academia, researchers and developers, a lot of government officials and military officials. And at that conference, one of the Russian MOD officials said that AI will help us in cyberspace and help us win info wars, information operations. He didn't elaborate, but he did indicate that AI is going to be an essential element in this type of competition.

Robert J. Marks:

Okay. So there is at least indication of a modicum of truth?

Samuel Bendett:

Absolutely there is.

Robert J. Marks:

Okay. Who was working on the Russian military AI? Is it military research labs? Is it the academia? Who's doing it?

Samuel Bendett:

All of the above. So there are two major lines of effort where AI is undergoing development. One is called Advanced Research Foundation or Фонд перспективных исследований. This is Russia's DARPA-

Robert J. Marks:

Wait. Say that again. That sounded so cool in Russian.

Samuel Bendett:

Okay. Advanced Research Foundation or Фонд перспективных исследований.

Robert J. Marks:

Okay. You are a native Russian speaker, okay.

Samuel Bendett:

I sure am. And so, this is Russia's DARPA like institution. It was officially inaugurated in 2012 and launched in 2013, has a similar mission to the American DARPA to develop breakthrough technologies and concepts and proof of concepts, whether or not they're actually fielded. Advanced Research Foundation works on military robotics. It also works on artificial intelligence development. And in 2018, this foundation made a proposal to the MOD in how AI should develop in Russia, the four principles. And

ARF thought that AI should develop as speech recognition, image recognition, control of autonomous military systems and control the weapons' life cycle. So that's one major institution. Another institution is a recently launched ERA technopolis, or the tech city.

Samuel Bendett:

ERA stands for [foreign language] army or the Russian military elite, and it is a 75 acre campus on the Black Sea Coast. Think of it as a, kind of a very small university where researchers live and work. ERA is developed for the young military scientists from across the military, so that they can work side by side with state defense corporations and the private sector in designing and developing breakthrough technologies. And recently the ERA has been designated as the focal point for Russian military artificial intelligence development. So, they are actually working on multiple projects and they're hosting a lot of debates and discussions on the topic. Other major actors are some of the biggest state corporations and enterprises.

Samuel Bendett:

In our previous podcast, I mentioned Rostec, which is the Russian technologies, which is a huge umbrella corporation that has several hundred subsidiaries working on all manner of technology development. And a lot of Rostec subsidiaries are actually working on artificial intelligence development too, for the military and the civilians. Also MOD has started to establish relationships with some of the best high-tech universities across the country, and one of them is the Southern Federal University. And Southern Federal University houses one of MOD's Research and Development Center of Robotics. So we have government institutions, we have academia, and no doubt in the near future, we can even have some private sector efforts that will also be part of the MOD military AI development ecosystem.

Robert J. Marks:

You talked about the equivalent of Russia's DARPA. DARP in the United States, I've heard it referred to as the department of mad scientists.

Samuel Bendett:

Yes.

Robert J. Marks:

You also referred to the idea last time of, the incredible amount of risk that it takes many times to get new innovative ideas out into the public. And DARPA's remembered as the origin of GPS of the internet and even self-driving cars, at least the first research into self-driving cars. I guess that Russia's trying to do exactly the same thing?

Samuel Bendett:

And in fact, ARF has a similar mission. They have, well, I wouldn't say a carte blanche, but they have a lot of freedom in what they are working on. And the point now for the ARF is that, they are working on proofs of concept. So whether the project succeeds or fails, is irrelevant. What is actually important is that, they can prove that something can work, something can function. And so ARF works on a lot of robotics development, for example, a lot of swarming applications for robotics. It works on different AI applications, and they're at least in the public statements, there's a certain degree of freedom in that type of work that probably wasn't there before, prior to the establishment of this specific institution,

whose mission is to try and see if a certain breakthrough product or technology can in fact be developed.

Robert J. Marks:

You piqued my interest when you mentioned the word swarm, because that's an area that I'm very interested in. The US army recently developed a swarmer, they're developing a swarm that's going to go around helicopters. And these little swarm agents are going to do sophisticated things from electronic warfare to acting as decoys in case they're attacked. Are you aware of any of the specific swarm intelligence projects, which are going on in Russia now?

Samuel Bendett:

Well, at ARF and the ERA together are working on conceptualizing and developing swarm applications. So ARF is working on a robotic military platform, which they call the Marker and the Marker is supposed to be the test bed for swarming applications, for unmanned ground vehicles and unmanned aerial vehicles. In other words, how unmanned ground vehicle can cooperate and work together with multiple UAV platforms. So absolutely they're working on that, in fact, ERA students recently tested several swarming applications and they conducted several swarming projects as funded by the Advanced Research Foundation. So they understand the significance of swarm applications for military, especially for unmanned military systems. They have been working on it for years and they will continue to develop and refine their products.

Robert J. Marks:

That's really fascinating. It turns out in the United States, there is DARPA, which is the department of mad scientists. And then there is the more down to earth applied research offices from DOD, like the Army Research Lab, the Office of Naval Research and AFOSR, the Air Force Office of Scientific Research. It sounds like the strata being developed in Russia is similar to what is happening in the United States.

Samuel Bendett:

Absolutely. So in 2012, the MOD, the Ministry of Defense launched several centers that are actually housed in the MOD. And one of them is the Center for Research and Technological Support of Advanced Technologies. The MOD also has a robotics research center. It has a separate center on UAV development. So while there are separate agencies that can work on breakthrough technologies agencies like the ARF, MOD also has its own research and development efforts, so that technologies can go through the entire research development testing and evaluation life cycle.

Robert J. Marks:

What about academia? I know in the United States we have things called URX. Where I used to work at the University of Washington, we had the Applied Physics Lab, which was associated with the University of Washington that did work for the United States Navy. At Penn State, they have something called the Applied Research Lab, which also does work for the Navy. And there's a number of these labs, which are associated with universities that do military focused work. Do we see any of that happening in Russia right now?

Samuel Bendett:

Yes, we do. In fact, I mentioned Southern Federal University as one of the focal points for MOD's development of robotics swarms. So MOD started to reach out to the academia and establish centers of

excellence, dealing with breakthrough technologies. Another interesting center is located at the Voronezh State University, in the city of Voronezh in Russia, and that center also works on the MOD kind of breakthrough technologies. That process is starting out. In many ways that it is probably kind of a revitalization of some of the practices enjoyed during the cold war when the state would be able to kind of engage with Soviet academia at will and both classified and unclassified work. So right now we have some public efforts. I'm sure there are some classified efforts that the MOD is not discussing.

Robert J. Marks:

You mentioned swarm is one in a list of the different military applications that are being pursued in Russia. What are some of the other ones that they're pursuing? Anything on missiles, on autonomous warfares, that's a big flashpoint in the United States debate as to whether we should have automatic military weapons, anything of that sort going on?

Samuel Bendett:

Yes, absolutely. And in fact, the MOD is engaged in a public debate on what the military autonomy means for the future of warfare. Certainly there's a lot of desire on behalf of the Russian military to develop eventually, weapons that can function autonomously without human interference, or that can perform 99% of the tasks and leave a human operator to kind of make the final decision. So military autonomy is very much under development right now, and very much under the discussion. I mentioned ERA, the ERA technopolis, the tech city. In fact, ERA is a host for an annual military conference called the Robotization of the Russian Armed Forces where they bring together the military, the academia, the end users, and the developers to discuss the ongoing development and application of military robotics. And of course the issue of autonomy is always at the top of the agenda, what is the autonomy? How it can be maintained, how it can be developed and ultimately how it could and should be controlled.

Robert J. Marks:

Sam, the takeaway I have from our chat together is that Russia, in some way is duplicating the infrastructure of the United States military in the establishments of these URX, of these think tanks, DARPA sort of think tanks. And would you say that's a fair assessment?

Samuel Bendett:

I would, of course, why reinvent the wheel? You can just borrow proven concepts and apply them in your own unique fashion.

Robert J. Marks:

That's very interesting, imitation certainly is a great way to flatter people. So I think the US infrastructure is being flattered here.

Samuel Bendett:

Well, it would seem so. Yes.

Robert J. Marks:

Okay. Well, that's great. Thank you, Sam. I've learned a lot from our conversation. I really appreciate the time you've spent with us. We have been talking with Samuel Bendett. He's an advisor with the CNA's Advisory Analysis Group, where he's a member of the Russia's Studies Program. He's also a member of

CNA's Center for Autonomy and Artificial Intelligence. That wraps it up for this podcast. Until next time, be of good cheer.

Announcer:

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